

Appl. No.: 10/663,274
Amdt. dated November 16, 2004
Reply to Office Action of September 17, 2004

REMARKS/ARGUMENTS

In the Office Action dated September 17, 2004, Claims 1-21 are pending. Claim 7 is objected to for a grammatical informality. Claims 2 and 9 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite. Claims 1-3, 5-8, 10-15, and 17-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,244,541 to Hubert in view of U.S. Patent No. 6,416,030 to Bergdahl, et al. Claims 4 and 6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hubert in view of Bergdahl, et al. and further in view of U.S. Patent No. 5,884,736 to Burdisso, et al. Claims 9 and 21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Hubert in view of Bergdahl, et al. and further in view of U.S. Patent No. 2,729,443 to Olinger.

Regarding the objection to Claim 7, Applicant has amended the claim to correct the informality pointed out by the Examiner. The amendment is wholly unrelated to the substantive patentability of the claim.

With regard to the rejections of Claims 2 and 9 under 35 U.S.C. § 112, second paragraph, Applicant respectfully submits that the claims are not indefinite. In this regard, Applicant notes that Claim 1 separately recites linear bearing assemblies and isolators. That is, the linear bearing assemblies, as recited in Claim 1, do not include the isolators. Therefore, Claims 2 and 9 properly refer to the "linear bearing assemblies and isolators."

Turning now to the rejections under 35 U.S.C. § 103(a), Applicant respectfully traverses for the reasons set forth below. Claim 1 recites "two linear bearing assemblies extending substantially parallel in an axial direction between the first and second devices, each bearing assembly having a shaft member connected to one of the first and second devices and a linear bearing connected to the other of the first and second devices, the linear bearings being configured to move axially on the shaft members such that the first and second devices are configured for relative motion therebetween in the axial direction and the bearing assemblies restrain a rotation between the first and second devices about an axis defining the axial direction." The significance of such restraint is described in the present application:

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In operation, the linear bearing assemblies 30 restrict the relative motion between the kill vehicle 50 and the boost device 60 to motion substantially in the axial direction of the shaft members 32. Transverse motion, i.e., perpendicular to the axial direction, and rotational motion about the axial direction between the boost device 60 and the kill vehicle 50 are thereby prevented. Thus, the guidance information communicated from the boost device 60 to the kill vehicle 50 will accurately describe the orientation of the kill vehicle 50.

Page 7, lines 19-25.

The Office Action states that Hubert shows linear assemblies restraining rotation between first and second devices and Bergdahl, et al. teaches a linear bearing and isolators configured to be axially loaded by a relative motion between first and second devices. Therefore, the Office Action contends that it would have been obvious "to have modified the linear assemblies of Hubert to have been linear bearing assemblies, as taught by Bergdahl, et al., in order to provide a means of facilitating relative axial movement between the two devices."

Applicant disagrees. Even if the mechanism of Bergdahl, et al. were combined with the system of Hubert, the result would not provide each of the features of the invention of Claim 1. In particular, Bergdahl, et al. describes a de-coupling mechanism for an elastomeric mounting/isolation system. As shown in Figure 1, the assembly 10 includes an outer tubular sleeve 16 that mounts on a frame 26, and an inner tubular sleeve 14 that slides on a sleeve 40 connected to a body portion 50. The sleeves 14, 16 are separated by an elastomeric element 12. Thus, the "assembly 10 allows limited relative three-dimensional spatial motion between frame 26 and body portion 50. One dimension of motion is along the axis of the assembly. The other two dimensions are radial to the axis." Col. 4, lines 44-48. (Emphasis added.) In fact, it is this relative motion that allows the de-coupling of the axial and radial spring rates of the system.

Significantly, the sleeves described by Bergdahl, et al. are not linear bearings "configured to move axially on the shaft members such that the first and second devices are configured for relative motion therebetween in the axial direction and the bearing assemblies restrain a rotation between the first and second devices about an axis defining the axial direction." In fact, rather

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than restraining a rotation, the assembly of Bergdahl, et al. is specifically designed to allow movement in a radial direction between the body portion 50 and the frame 26. Therefore, even if the multiple assemblies disclosed by Bergdahl, et al. were provided as recited in Claim 1, the assemblies of Bergdahl, et al. would not "restrain a rotation between the first and second devices about an axis defining the axial direction." In other words, even if the assemblies of Hubert were modified "as taught by Bergdahl, et al., in order to provide a means of facilitating relative axial movement," as stated in the Office Action, the resulting structure would not restrain rotation as claimed.

Further, Applicant submits that there exists no motivation for the combination of Bergdahl, et al. with Hubert. In this regard, Applicant notes that neither Hubert nor Bergdahl, et al. provides a suggestion for mounting the multiple assemblies of Bergdahl, et al. in the claimed configuration to restrain rotation between the devices. To the contrary, Bergdahl, et al. describes the radial movement between the frame and body. Thus, even if multiple assemblies of Bergdahl, et al. were assembled to support a single body portion 50 relative to the frame 26, the body portion would be subject to at least limited rotational movement as each individual assembly allows motion in the radial directions.

The other cited references, Berdisso, et al. and Olinger, also fail to provide the claimed features. Accordingly, Applicant respectfully submits that Claim 1 is not obvious over the cited references even if the references were to be combined. Similarly, independent Claim 12 is not anticipated for the same reasons, nor are dependent Claims 2-11 and 13-21.

In addition, the dependent claims provide additional bases of distinction over the cited references. For example, Claim 3 recites that "the linear bearing assemblies are configured to be independently axially moved such that the first device is configured to rotate relative to the second device about an axis transverse to the axial direction." For example, as described in the application, "one or more of the linear bearings 34 [can] move toward the kill vehicle 50 while one or more of the other linear bearings 34 move toward the boost device 60." Thus, "the isolators 40 can attenuate a relative rotational motion between the kill vehicle 50 and the boost device 60 about an axis transverse to the axial direction." Application at page 7, line 31 – page 8, line 2. Neither Hubert nor Bergdahl, et al. describes such motion. In fact, Hubert discloses

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only axial motion. As noted above, Bergdahl, et al. describes only axial motion and translation in the radial directions. Therefore, Applicant submits that Claim 3 is also allowable for this reason, as is Claim 15, which includes a similar limitation.

For the reasons set forth above, Applicant respectfully submits that each of Claims 1-21 is allowable.

* * * *

CONCLUSIONS

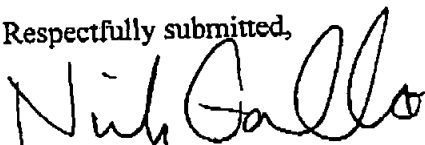
In view of the remarks presented above, Applicant submits that the present application is in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicant's undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper.

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However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,

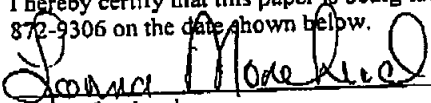


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November 16, 2004
Date

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